

### **REMARKS/ARGUMENTS**

Claims 1, 3-5, 7-35 and 37-42 are pending in the application. In this response, claims 7, 21-22, 24-28, 30-31, 35 and 42 have been amended and claim 33 is canceled without prejudice or disclaimer. The claim amendments are all supported by the application as originally filed. Thus there is no issue of new matter. Entry of the claim amendments and reconsideration of the application is respectfully requested. Claims 1, 3-5, 7-32, 34-35 and 37-42, as amended, are pending in the application.

#### **Claim Objections**

Claim 7 is objected to due to an extra period at the end of the claim. The claim is thus amended to delete the second punctuation mark. This is believed to overcome the objection to the subject claim.

Claims 21, 22, 25-28, 30, 31, 33, 35 and 42 are objected to as being of improper dependent form for failing to further limit the subject matter of a previous claim.

In response, claim 33 is canceled without prejudice or disclaimer and claims 21, 22, 25, 26, 27, 28, 30, 31, 35 and 42 are amended in a manner which is believed to overcome the Examiner's objection.

The Examiner is, therefore, respectfully requested to reconsider and withdraw the objection to claims 7, 21, 22, 25-28, 30, 31, 33, 35 and 42.

#### **Claim Rejection Under 35 U.S.C. §112**

Claim 24 is rejected under 35 U.S.C. §112, second paragraph, for the reason given in ¶9 on p. 3.

In response to the rejection the claim, i.e., no. 24 has been amended to delete the phrase, "and further aids". This amendment is believed to overcome the ground for rejection under §112, which should therefore be withdrawn.

### **Claim Rejections Under 35 U.S.C. §103**

The Examiner continues to maintain the rejection under 35 U.S.C. 103 over Kropf et al. (DE 10063945 A1), hereinafter “Kropf”, in view of Greenberg et al. USP 5,980,955 (“Greenberg”). The rejection is, once again, respectfully traversed.

The references cited in combination to reject applicants’ claims are discussed in great detail in applicants’ prior responses filed in this application. Those remarks are expressly incorporated by reference into this Amendment.

In response to the claim rejection noted above, applicants submit that Greenberg teaches coated chewing gum products which are characterized by a coating comprising an additional smaller quantity of a food-acceptable, poorly water-soluble salt, added for purposes of improving the smoothness of the finished coating, thereby providing an improved appearance to the product (see, e.g., col. 1, first and second paragraphs of the reference).

The Kropf reference, on the other hand, discloses the production of dental adhesive films which are prepared by adding specific, almost water-insoluble nanoparticle-sized calcium salt with a solubility less than 0.1 wt% at 20°C, which is much lower than the solubility of the salts disclosed in the Greenberg reference (cf. paragraph [0013] of Kropf).

On p. 7, in ¶26 of the Office Action it appears that the Examiner is indicating that the difference(s), noted in applicants’ previous response(s), between the mode of production of a dental adhesive film (Kropf) and the steps involved in a coating process, i.e., such as is disclosed in Greenberg, are irrelevant due, at least in part, to the fact that Kropf discloses that chewing gum products can be used for the remineralization of the teeth. The Examiner takes the position that it would be obvious for one having an ordinary degree of skill in this art to combine the disclosure of Kropf with that of Greenberg, since the desire to employ calcium composites in chewing gum products is disclosed in Kropf (see, e.g., p. 9 ¶34 of the Office Action).

Applicants respectfully submit, however, that the Examiner’s analysis fails to take into account that although Kropf generally discloses in paragraph [0003] that chewing gum products can be used for the remineralization of teeth, the reference is silent with regard to the use of the presently claimed calcium salts (see, e.g., claims 1 and 25) in combination with proteins in chewing gum products, as now recited in applicants’ claims. Further, the very general disclosure

relating to chewing gum products as found in Kropf is not in any way linked with the disclosure contained in the subject reference regarding the use of the specific calcium salts which are employed for purposes of remineralization of teeth by the dental adhesive films which are the primary subject of the reference. That is to say that the reference provides no linkage between the teaching of the particular calcium salts (as are also recited in applicants' claims) and the production of a chewing gum including such salts, as is presently claimed by applicants.

Applicants respectfully submit that they are of the opinion that one having an ordinary level of skill in the relevant art would not have been motivated to employ calcium-protein composites, i.e., the poorly soluble calcium salt with a protein component, as disclosed in Kropf, in coatings for chewing gum products - as claimed by applicants - due to the very significant technical problems which must be overcome, and which have been overcome by the applicants, in order to successfully achieve a desirable product and method of making the same, i.e., as presently claimed.

Additionally, the references combined by the Examiner do not, in applicants' view, establish any significant possibility for success in combining the various components in the manner now claimed by applicants. That is to say that even of a skilled artisan would have found some sort of linkage between the limited disclosure in Kropf regarding chewing gum products and the specific calcium salts taught for use in forming the adhesive dental films that are the primary 'focus' of the reference, this still would not, for the reasons set forth below, have led to the discovery of the presently claimed chewing gum product or its method of manufacture. This is due to the fact that the very general disclosure contained in Kropf disclosing the use of chewing gums for providing effective agents onto the surface of the teeth would not in any manner suggest to produce chewing gums having coatings, i.e., on the surface of the chewing gum, wherein the coating is provided in order to provide effective agents to the teeth.

As one of ordinary skill in this art is aware, the coating of a chewing gum would have an entirely different composition than the 'core' of the chewing gum. That is, the core of the chewing gum consists mainly of a chewing gum base having a flexible matrix-like structure, whereas the coating that envelops the core does not comprise a chewing gum base and is designed to be readily dissolvable in water to permit the release of sweetness, aroma and other

ingredients. Thus the requirements for a substance to be used in a core are entirely different than those for substances to be used for, or in, coatings for such chewing gums. This is particularly due to the fact that the coating is prepared in an entirely different manner than the chewing gum center, namely by dissolving the coating ingredients in an aqueous medium, followed by applying the aqueous medium to the gum core(s), after which the aqueous medium is evaporated off. Thus, even if one of ordinary skill would consider the general disclosure found in Kropf relating to the subject of chewing gums as a motivation to use the calcium salts disclosed by the reference in the chewing gums, i.e., in addition to incorporating them into the dental adhesive films, this still should not be taken as a teaching or even a suggestion to incorporate such calcium salts in the coatings of the subject chewing gums - as is presently recited in applicants' claims.

In sum, therefore, the calcium salts disclosed in Kropf would not be suggested for purposes of coating a chewing gum, as presently claimed by applicants due, at least in part to, (a) the low solubility of the subject materials, and (b) the high tendency for the calcium salts to recrystallize in comparison to the calcium salts disclosed in the Greenberg reference combined by the Examiner with Kropf.

Further to the above, the inclusion, i.e., with the salts, of a protein component, i.e., according to present claims 1 and 25, was not at all obvious to one having ordinary skill in this art. It is well known to those skilled in this art that protein components (1) soak up water, (2) negatively affect the crystallization of a sweetener, (3) crystallize out of the core, and (4) cause agglomeration problems, i.e., thus causing the resultant coating material to stick to the coating drum as well as on the core to be coated.

Per the considerations noted above, therefore, there was among those having at least an ordinary degree of skill in the relevant art, at the time the present invention was conceived and reduced to practice, a prejudice against the use of protein components during the recrystallization of carbohydrates, more particularly in the coating of cores, and even more particularly in the coating of chewing gum cores.

Still further, in paragraphs 26-30 of the Office Action the Examiner appears, in applicants' view, to change the focus of the argument in support of the subject 'obviousness' rejection. The Examiner appears to be arguing that the Kropf reference discloses the calcium

composite as required in applicants' claims, as well as that Kropf would disclose the presence of remineralizing agents in chewing gums. Accordingly, if one follows the Examiner's argument, the Kropf reference would motivate one having an ordinary level of skill in this art to utilize traditional chewing gum materials in the production of a chewing gum which includes a remineralizing calcium component. The traditional chewing gum would be as supplied by Greenberg. The argument, however, is believed to overlook several important points which, if considered would, in applicants' view, lead to the conclusion that the cited combination of references would not teach or suggest the presently claimed coated chewing gum or the method of making the same.

For instance, in paragraph [0003] of Kropf pastes, mouthwashes, lozenges and chewing gums are mentioned as elements which are suitable for introducing certain active components to the tooth surface. The discussion then goes on to identify adhesive films containing active components against carries or periodontitis. Based on the prior art described in paragraph [0003], paragraph [0008] of the subject reference states that it was the object of the invention as taught in the subject (Kropf) reference to discover an effective form for applying calcium salts having a remineralizing action. According to paragraph [0009], this object was achieved with the use of dental adhesive films used by the present applicants in producing the coating for the presently claimed chewing gum.

Applicants respectfully submit, therefore, that it is clear from the above that in the matter of solving the technical problem underlying the invention described by Kropf, i.e., the provision of active anticaries agents in the mouth via an effective application form, only the adhesive films provided for this purpose in the reference have been found suitable. This is particularly evident due to the fact that in paragraph [0003] of the reference (see discussion above) several alternate (i.e., other than an adhesive film) application forms are mentioned, e.g. chewing gums, mouthwashes, pastes and lozenges, yet none of these application forms are taught or even suggested as being used in the invention which is the basis of the subject reference. Thus, in applicants' view the Kropf reference demonstrates by itself that it would not be obvious to utilize chewing gums, as applicants have done, as a form for applying the subject calcium salts to an individual's teeth. The inventors in the Kropf reference, although they knew about chewing

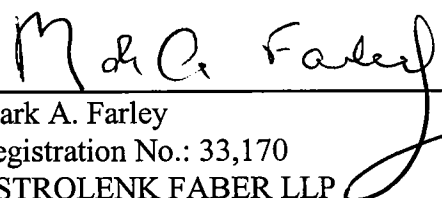
gums, choose to apply the calcium salt via an adhesive film, i.e, and not with the use of a chewing gum.

Still further, applicants submit that the Examiner has not given sufficient weight to the fact that the dental film, i.e., as disclosed in Kropf, is prepared and utilized in a completely different manner than the chewing gum as claimed by applicants. The knowledge that a specific calcium composite may be prepared to produce a dental film, and that it may be used in the form of a dental film, does not in applicants' view provide any motivation, or any prospect for success in applying the same calcium composites in the coating of a chewing gum. Both the process of preparation and the methodology of use are entirely different when one compares a chewing gum to a dental film. These distinctions are as set forth in applicants' previous responses filed in this matter which, as indicated above, are incorporated by reference into the present Amendment.

For the reasons presented herein, therefore, applicants respectfully submit that the claim amendments and the arguments provided in the present Response are believed to be sufficient to overcome all of the objections and rejections of the claims in this case. The Examiner is, thus, respectfully requested to reconsider and withdraw all such objections and rejections and to issue a Notice of Allowance for all of applicants' pending claims.

Respectfully submitted,

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